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FACSIMILE COVER SHEET

DATE:	**November 7, 2002**
TOTAL PAGES WITH COVER:	10
TO:	**Examiner Leonardo Anjujar**
FIRM:	**U.S. Patent and Trademark Office (Art Unit 2826)**
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FROM:	**Edwin H. Paul Esq.**

COMMENTS:

Application No.: 09/823,600
Inventor: David Chong Sook Lim
Filed: 03/30/01

SPECIAL INSTRUCTIONS:

If you do not receive all pages, or you are not the intended recipient, please contact us at (617) 951-2500 as soon as possible.

PATENTS
112055-0040 #11

Response attached J. McMillan 11/9/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of:
David Chong et al.

Serial No.: 09/823,600

Filed: March 30, 2001

For: PACKAGING SYSTEM FOR DIE-UP CONNECTION OF A DIE-DOWN ORIENTED INTEGRATED CIRCUIT

Examiner: Andujar, Leonardo

Art Unit: 2826

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November 7, 2002

CERTIFICATE OF TRANSMISSION

I hereby certify that the following paper is being facsimile transmitted to the Patent and Trademark Office on November 7, 2002.

Jeneen M. Adamo

Honorable Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

RESPONSE AFTER FINAL REJECTION

This is in response to an Office Action dated 9/19/2002 that (final) rejected the elected claims 1-8, and 15. This response is being timely filed within the two-month period, and no new fees are due.

It is respectfully requested that the Examiner review his final rejection and allow the application as amended. All the claims as amended include the specific limitation that for connecting a die down die in a die up orientation:

> a plurality of connectors corresponding in number to the number of leads, wherein said connectors electrically connect the die to said leads, wherein said leads are arranged as part of said substrate such that they pass under the die when the die is connected to said substrate, wherein the leads on the substrate terminate at points that correspond to a die-up orientation.

Please refer to my sketch 1, where a die up die is connected properly in a die up orientation. For demonstration purposes a 14 contact die is shown with the contacts in a line on one side of the die. Sketch 2 is a vertical view cross section through the power contact and contact 14 - it can be seen that the jumpers 1 and 2 are arranged close to the corresponding contacts on the die. So jumpers 1 and 2 are used in a standard connection to such a die.

Please consider Sketches 3 and 4 where a die down die is placed into the same die up orientation package. To accommodate the orientation of the jumpers 1 and 2, the die down die , sketch 3 the same vertical cross section as sketch 2, must be flipped along the axis A'. But notice that this reverses left to right the locations of the contacts on the die sketch 4. So the jumpers 1 and 2 will make improper connections. Jumper 1 would be making contact to contact 14 of the die, etc. So the flipped die does not mount properly.

Notice in sketch 5, the same die down die is mounted with the inventive substrate. The die down die is connected to the substrate and leads on the substrate reverse the left right orientation of the contacts so that the correct orientation is now achieved, and jumpers 1 and 2 connect to the proper contacts on the die.

This reversal is not suggested and not shown in the cited references. The Suyama et al. patent , no. 5,731,630 discloses a tape carrier that increases the number of terminals (see the Title and Abstract) between the tape and a substrate. So, in his FIG. 4, as discussed in column 4, lines 12 et seq. multiple contacts are disclosed. The Examiner at the end of page 2 mentions this is a die down die connected to a PC board. But on the next page, item 6, the Examiner goes on to conclude that the leads on the substrate terminate at points that correspond to a die up orientation. Respectfully, in order to arrange his substrate to accommodate a die up configuration as claimed in the present application, Suyama must reverse the leads so that the contact orientation matches a die up package, but there is no hint of this and there is no suggestion of this. Suyama is increasing the number of terminal only. Suyama does not mention or show or indicate in any way that a die down die can be packaged into a die up oriented package by use of his invention, and indeed his invention will not do so, without adding inventive steps.

No new matter is added. Please refer to the first part of the Summary of the present invention. If the prior amendment did not make clear the differences between the present invention and Suyama, or this response is not clear, or the characterization of the Suyama patent is faulty, applicant's attorney, cited below, would appreciate a call from the Examiner.

None of the references cited or others are known provide this conversion of the orientation to allow a die-down chip to be mounted in a die-up package as the present invention so provides.

PATENTS
112055-0040

All the claims distinguish the cited references and are now allowable. Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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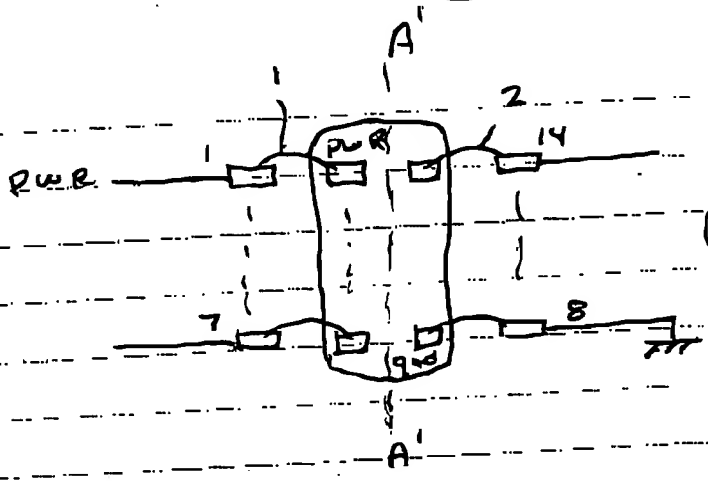
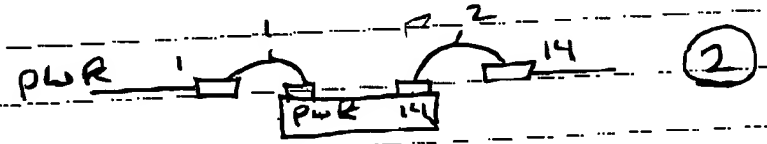
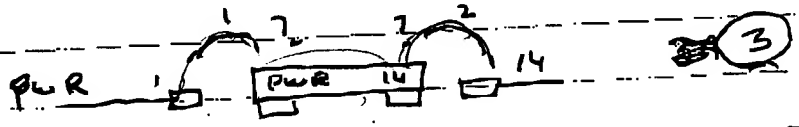
□ are contacts



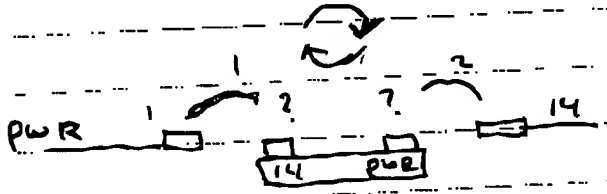
1 DIE UP IN DIE UP PACKAGE



2



3 DIE DOWN IN DIE UP PACKAGE



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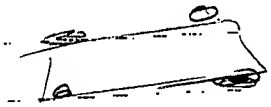

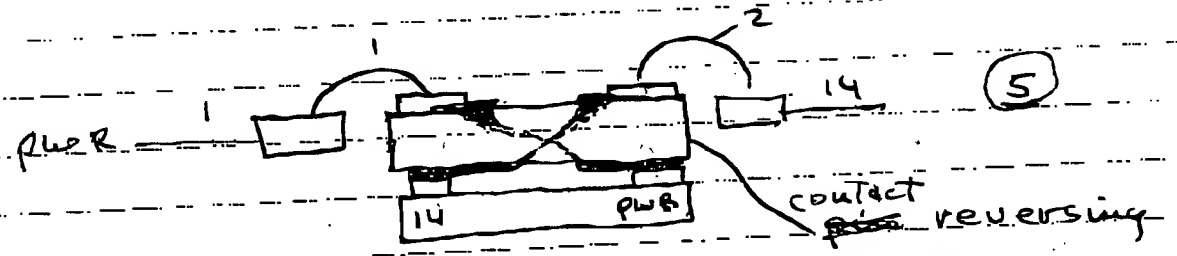

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